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June 26, 1995

William F. Caton, Acting Secretary
Federal Communications Commission
1919 M Street, N.W.
Room 222
Washington, D.C. 20554

RE: ITV, Inc. and IVDS Affiliates, LLC
WT Docket No. 95-47, RM-8476
Amendment of Part 95 of the Commission's Rules to allow Interactive Video and Data Service licensees to provide Mobile Service to Subscribers

Dear Mr. Caton:

Enclosed on behalf of ITV, Inc. ("ITV") and IVDS Affiliates, LLC ("IALC") is an original and four (4) copies of the Comments of ITV, Inc. filed in the above-referenced matter.

Please contact this law firm if you have any questions with respect to this matter.

Respectfully submitted,

William J. Franklin
Attorney for ITV, Inc. and
IVDS Affiliates, LLC

Encls.
WJF/mtf
cc: ITV, Inc.
IVDS Affiliates, LLC

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 95 of the	)	
Commission's Rules to allow	)	**WT Docket No. 95-47**
Interactive Video and Data	)	**RM-8476**
Service licensees to provide	)	
Mobile Service to Subscribers	)	

To: The Commission

COMMENTS OF ITV, INC.

ITV, Inc. ("ITV") and IVDS Affiliates, LLC ("IALC"), by its attorney and pursuant to Section 1.415 of the Commission's Rules, hereby comments on the above-captioned Notice of Proposed Rulemaking.[1/] Subject to specific changes proposed herein, ITV and IALC generally support the Commission's proposal to modify its rules to permit licensees in the Interactive Video and Data Service ("IVDS") to provide mobile service to subscribers.

DESCRIPTION OF ITV AND IALC

ITV and IALC are commonly owned. ITV is an IVDS licensee for the San Francisco MSA. Accordingly, ITV has experience in assessing the technical and economic realities of the IVDS business. As a result of that assessment, ITV formed IALC to develop a product line of IVDS equipment for ITV's use and for the use of other IVDS licensees. That equipment, which is now type-accepted and operational for an in-market field trial, uses

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[1/] 10 FCC Rcd ____ (FCC 95-158, released May 5, 1995) ("NPRM").

the IVDS spectrum to distribute business and commercial data to subscribers.

Accordingly, ITV and IALC possess a demonstrated level of expertise in the design and operation of IVDS systems. Thus, their comments should receive serious consideration from the Commission.

I. THE COMMISSION SHOULD PERMIT THE BROADEST POSSIBLE MOBILE USE OF IVDS BY REGULATION, SO THAT THE MARKETPLACE CAN DETERMINE THE ACTUAL, OPTIMUM USES FOR IVDS COMMUNICATIONS.

The NPRM proposes (¶10) that IVDS licensees be permitted to provide a broad range of mobile IVDS services, with communications directly between the licensee's Cell Transmitter Stations (CTS) and the subscribers' Response Transmitter Units (RTU) or indirectly between RTUs via a CTS. ITV and IALC strongly support this proposal.

The NPRM also requests comments whether "any restrictions should be placed on the types of ancillary mobile services" that IVDS licensees would be permitted to offer. The only types of restrictions should be driven by well-documented technical and interference concerns.

In other radio services, the Commission is rapidly abandoning the notion that it should artificially limit the types of communications which its licensees may provide. Rather than have the uses of spectrum be defined by regulation, the Commission has found that the public interest is well served by letting the marketplace develop efficient uses for spectrum.

With the continuing development of the information highway, the Commission cannot accurately predict the continuing best use for any block of spectrum. The Commission should apply this "marketplace" policy to IVDS, and permit the broadest possible use of mobile IVDS communications which do not produce harmful electrical interference to others.[2/]

II. THE COMMISSION SHOULD INCREASE THE DUTY CYCLE FOR IVDS RESPONSE TRANSMITTER UNITS IN PARALLEL WITH THE REDUCTION IN THEIR MAXIMUM EFFECTIVE RADIATED POWER.

In adopting the initial IVDS rules, the Commission sought to minimize or eliminate the possibility of interference by RTUs to reception of TV channel 13 by adopting Section 95.863. This Rules establishes a 5 second per hour (or 1% within any 100 millisecond interval) duty-cycle limitation on RTUs. At that time, RTUs could operate on a maximum Effective Radiated Power (ERP) up to 20 watts using automatic power control and an external antenna not exceeding 6.1 meters (20 feet) from the roof of the building.[3/]

The NPRM now proposes (¶¶ 8-9) that mobile RTUs have a maximum ERP of 100 milliwatts, subject to the existing duty cycle

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[2/] The NPRM also proposes to prohibit direct RTU-to-RTU communications. ITV and IALC also support this proposal. Their analyses have determined that direct RTU-to-RTU communications would make the IVDS channelization process more difficult, increase the potential for interference, and do not produce offsetting benefits. For example, calls between cellular subscriber units are implemented indirectly, with communications via a cell site, without loss of functionality.

[3/] Sections 95.855 and 95.859(c) & (d) of the Commission's Rules.

limitation. Further, the NPRM asks whether all RTUs could be limited to a maximum ERP of 100 milliwatts.

To answer these questions, ITV and IALC consulted with Signal Science, Inc. ("SSI"), the engineering firm that designed their IVDS equipment. Attachment A hereto is SSI's Engineering Comments which addresses these concerns. In its analysis, SSI draws three main conclusions:

- The RTUs of SSI's IVDS equipment, as designed for ITV and IALC, can operate with a maximum ERP of 100 milliwatts.
- Valuable IVDS spectrum will be wasted if the Commission does not raise the maximum duty cycle in parallel with lowering the maximum ERP. Raising the duty cycle while lowering ERP will not increase the potential for interference to TV Channel 13.
- The Commission should eliminate the requirement of Section 95.855 for automatic power adjustment for RTU's of 100 milliwatts ERP or less.

The specific duty cycle suggested by SSI's analysis maintains the current power density of 20 watts per 1% of 100 milliseconds, i.e., an power density equivalent to the continuous transmission of 200 milliwatts. Thus, if the Commission limits all RTUs to a maximum ERP of 100 milliwatts, then no duty cycle limitation is required to provide greater than current protection to TV Channel 13.[4/]

[4/] If the Commission maintains the 20 watts power limitation for RTUs, then the duty cycle should be established by the following table:

Maximum ERP	Duty Cycle Limitation Usage per 100 milliseconds	Resulting Average Power (watts)
20 watts	1%	0.2
5	4%	0.2

(continued...)

Accordingly, ITV and IALC support the Commission's restriction of maximum ERP for all RTUs to 100 milliwatts, but without either the requirement for automatic power adjustment or the duty cycle limitations.

III. THE COMMISSION MUST CLARIFY THE CONDITIONS, IF ANY, UNDER WHICH MOBILE IVDS SERVICE WILL BE DEEMED A "COMMERCIAL MOBILE RADIO SERVICE."

Beyond the mere authorization of mobile IVS service, the Commission should identify the conditions, if any, which will cause mobile IVDS service be deemed a "Commercial Mobile Radio Service" ("CMRS"). Operating a CMRS service imposes a different, and generally more rigorous, set of regulatory requirements than does operating a corresponding private service. For example, the CMRS licensee is subject to the alien ownership restrictions of Section 310 of the Communications Act and the public notice/ petition-to-deny procedures of Section 309.

ITV and IALC are concerned that, if the Commission does not define the conditions under which IVDS licensees providing mobile service will be deemed CMRS licensees, the resulting regulatory uncertainty will serve as a disincentive to investment in new IVDS systems.

The Omnibus Budget Reconciliation Act of 1993 (the "Budget Act") and the Commission's Second Report and Order in GN Docket

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[4/](...continued)

2	10%	0.2
0.5	40%	0.2
0.2 (or less)	100%	0.2 (or less)

No. 93-252, 9 FCC Rcd 1411 (1994), requires that any mobile service which meets that statutory definition of "Commercial Mobile Radio Service" be regulated as a common carrier. There, the Commission defined a "Commercial Mobile Radio Service" as:

> A mobile service that is: (1)(A) provided for profit, i.e., with the intent of receiving compensation or monetary gain; (B) an interconnected service; and (C) available to the public, or to such classes of eligible users as to be effectively available to a substantial portion of the public; or (2) the functional equivalent of such a mobile service described in paragraph (1).[5/]

In that Order the Commission expressly found IVDS to be a "fixed service", and on that basis, deemed it to be PMRS.[6/] If the Commission permits mobile IVDS service, that rationale is undercut.

Specifically, the Second Report and Order permits a service to be "hybrid" CMRS/PMRS, providing internal services on a not-for-profit basis (as PMRS) and selling excess capacity on a CMRS basis.[7/] By analogy, the Commission could deem an IVDS system providing both mobile and fixed services to be a hybrid CMRS/PMRS licensee, with fixed PMRS service and mobile CMRS service. Alternatively, the Commission could reject that line of reasoning, and find that IVDS is always a PMRS service, even when it is providing mobile service. The point here -- and the only point here -- is that it is unfair to IVDS licensees seeking to develop

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[5/] Section 20.3 of the Commission's Rules.

[6/] Second Report and Order, supra, 9 FCC Rcd at 1424; Section 20.7(e) of the Commission's Rules.

[7/] Second Report and Order, supra, 9 FCC Rcd at 1428-29.

a new radio service to have their regulatory status in limbo during the initial, crucial stage of the industry's development.

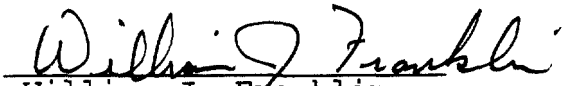
Accordingly, as contemplated by the Budget Act, the Commission will need to decide whether, or under what circumstances, the mobile use of IVDS will constitute a CMRS service offering.

CONCLUSION

Accordingly, ITV, Inc. respectfully requests that the Commission amend its IVDS rules as set forth herein.

Respectfully Submitted,

ITV, INC.
IVDS AFFILIATES, LLC

By: 
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Attachment A

SIGNAL SCIENCE, INC.
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Fax: (408) 492-1442

June 23, 1995

Engineering Comments Relating to Proposed Rulemaking
Before the Federal Communications Commission

Reference:

WT Docket No. 95-47
RM-8476

In the Matter of

Amendment of Part 95 of the Commission's Rules to allow Interactive Video and Data Service licensees to provide mobile service to subscribers

In the above referenced Notice of Proposed Rulemaking, the FCC proposes certain amendments to Part 95 Interactive Video and Data Service (IVDS) rules. The primary change being proposed is to allow mobile RTU operation. Related topics being considered are RTU power level and duty cycle limitations, and indirect mobile-to-mobile communications.

Signal Science, Incorporated is a small California corporation which has been involved in the design, construction, and analysis of radio communications systems for over 20 years. Signal Science developed an IVDS system which was FCC type accepted in March 1995. Limited field trials have been conducted in the San Francisco IVDS license area.

Evolving technology and applications demand maximum flexibility in the rules (while protecting other legitimate spectrum users) to encourage and nurture system and application development. Signal Science strongly supports allowing mobile RTU operation at reduced power (up to 100 milliwatts), with a corresponding increase or removal of the duty cycle limitation. Based on our IVDS development and field testing, we have no indication of any reason why mobile RTU operation should not be permitted.

Signal Science IVDS RTU systems operate on power levels even lower than the EON system, and would not be restricted by a 100 milliwatt limitation. However, we oppose imposing lower power level limitations without raising the duty cycle limitation.

Current rules limit the RTU transmit duty cycle and power to prevent potential TV interference. This limitation is depicted in Figure 1, which shows the potential for interference as a function of power level and duty cycle. By limiting the duty cycle to 5 seconds per hour or 1 percent within any 100 millisecond interval (appropriate for a power level of 20 watts), a significant region of potential system capacity at lower levels is

excluded. The appropriate rule change should take advantage of unused potential IVDS capacity, as shown by the light area in the figure.

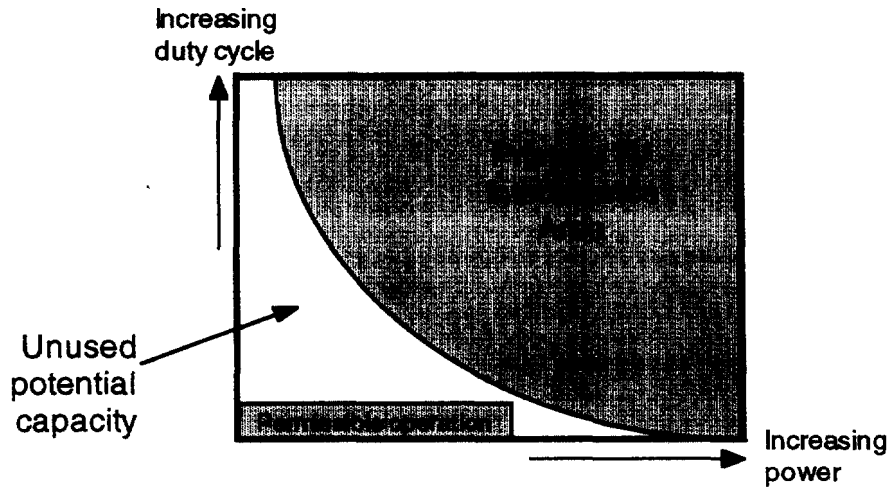

Figure 1. Interference Potential vs. Power and Duty Cycle

Signal Science proposes that the duty cycle limitation be retained as-is for RTU transmit power levels of 20 watts, but indexed to higher duty cycles for lower power levels.

One alternative duty cycle limitation could be that the product of duty cycle and power must be less than the average power of 20 watts over 100 milliseconds. We claim that this limitation would have the same or less potential for interference as a 20 watt transmitter under the current rules. When this relationship is used to create a table of duty cycle vs. transmit power, the following result is achieved to take advantage of the unused IVDS capacity (as shown in the graph) without increasing the potential for interference:

Transmit Power (watts)	Duty Cycle Limitation (% in 100 milliseconds)	Resulting Average Power (watts)	
20	1	0.2	(current rules)
5	4	0.2	
2	10	0.2	
0.5	40	0.2	
0.2	100	0.2	
0.05	100	0.05	

Table 1. Proposed Duty Cycle Limitation vs. Power

Additionally, lower transmit power precludes the need for automatic power adjustment in the RTU (see Section 95.855). Signal Science proposes that the requirement for automatic power adjustment in the RTU be eliminated for RTU transmitters of 100 milliwatts or less. This would result in less complexity in the RTU, benefiting the consumer by having lower cost.